

KIC 010491062

Q1-17 DR25 TCE Parameters

| TCE | Run Type | KOI? | Period (Days) | Epoch (BKJD) | Depth (ppm) | Duration (Hours) | MES | SNR | R_{\star} (R_{\odot}) | T_{\star} (K) | R_p (R_{\oplus}) | S_p (S_{\oplus}) |
|--------------|----------|---------|---------------|--------------|-------------|------------------|------|------|-----------------------------|-----------------|------------------------|------------------------|
| 010491062-01 | OBS | 3910.01 | 2.199052 | 133.070653 | 552.7 | 5.520 | 30.5 | 34.6 | 0.79 | 5310 | 3.03 | 457.52 |

Robovetter Results

| TCE | Run Type | Disp | Score | N | S | C | E | Comments |
|--------------|----------|------|-------|---|---|---|---|---|
| 010491062-01 | OBS | FP | 0.00 | 0 | 0 | 1 | 1 | CENT_RESOLVED_OFFSET—HALO_GHOST—EPHEM_MATCH |

Notes: OBS = Observed. INJ = Injected. INV = Inverted. SCR = Scrambled.

N = Not Transit-Like. S = Stellar Eclipse. C = Centroid Offset. E = Ephemeris Match.

See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

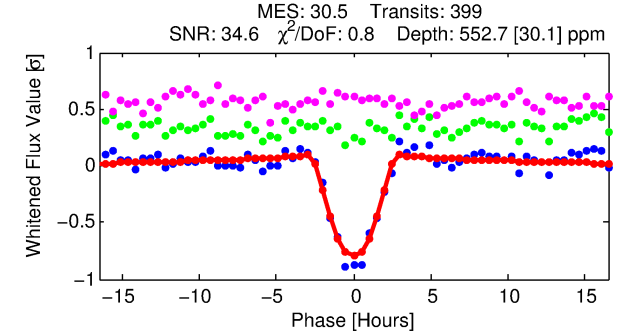
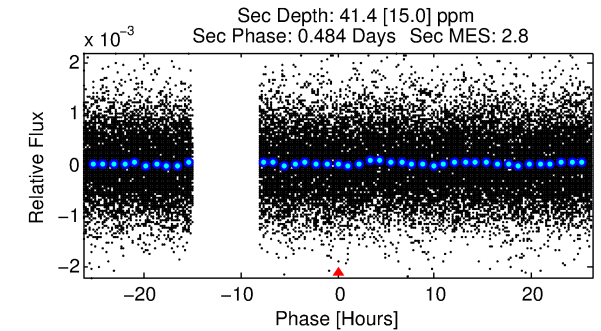
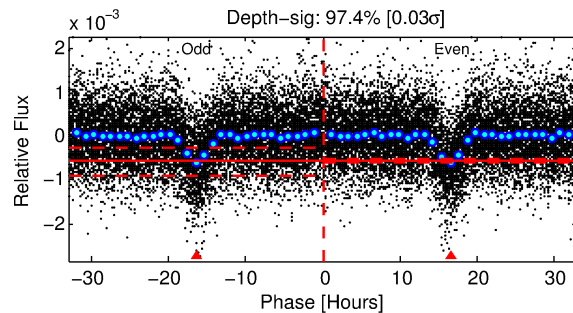
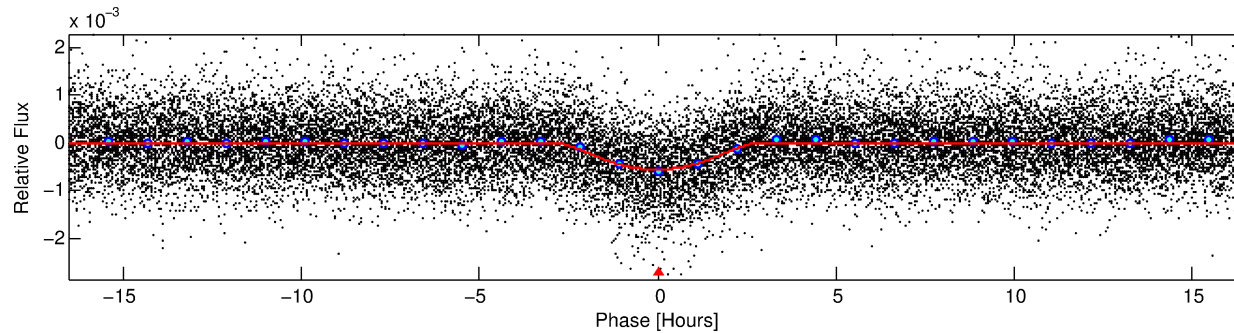
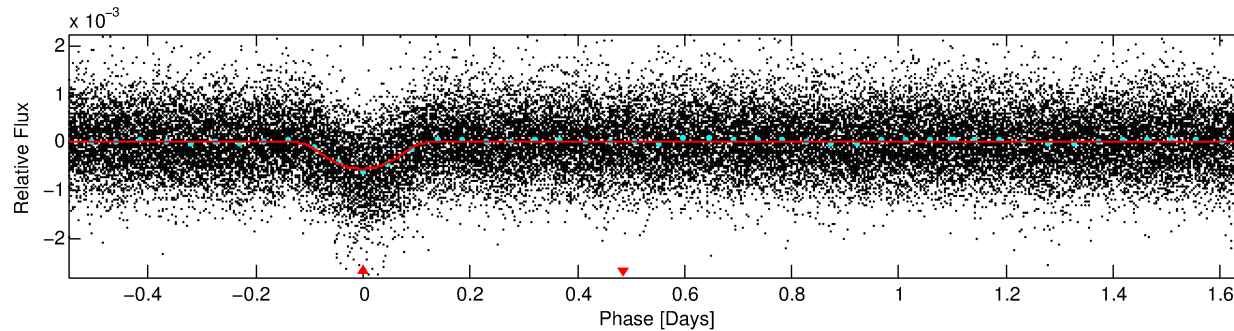
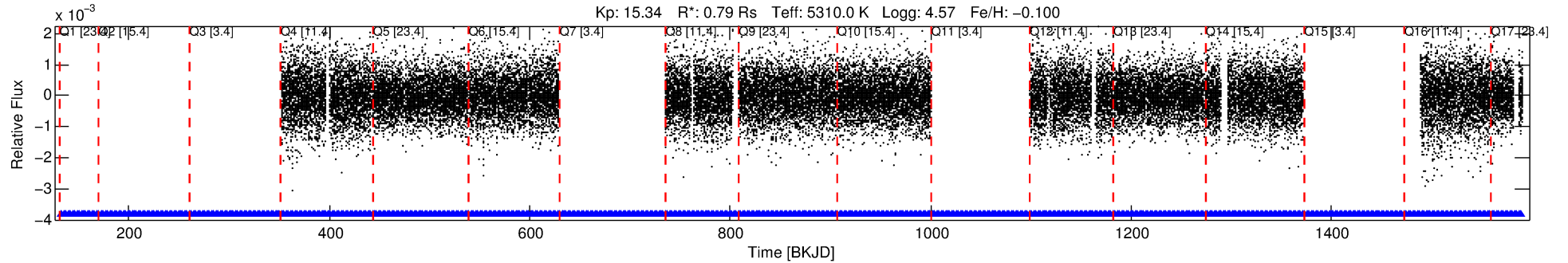
Ephemeris Match Information For 010491062-01

| TCE (1) | KIC | Parent (2) | Parent KIC | $P_1:P_2$ | Dist ($''$) | Δ Row | Δ Col | m_2 | m_1 | D_2/D_1 | Mechanism | Flag | σ_P | σ_T |
|--------------|----------|------------|------------|-----------|---------------|--------------|--------------|-------|-------|-----------|------------|------|------------|------------|
| 010491062-01 | 10491062 | 7336.01 | 10491031 | 1:1 | 16.9 | -4 | -2 | 13.24 | 15.33 | 410.51 | Direct-PRF | 0 | 0.52 | 0.40 |

Notes: $P_1:P_2$ is the period ratio. Dist is the distance in arcseconds. Δ Row and Δ Col are the number of pixels apart in row and column. m_2 and m_1 are the magnitudes of the parent and child. D_2/D_1 is the parent's transit depth divided by the child's. σ_P and σ_T are the significance of the match in period and epoch. For a match to be considered significant $\sigma_P < 5.0$ and $\sigma_T < 5.0$. Matches which have σ_P and σ_T very close to this cutoff should receive extra scrutiny, especially if the period ratio is very large.

DV One-Page Summary

KIC: 10491062 Candidate: 1 of 1 Period: 2.199 d
KOI: K03910.01 Corr: 0.951



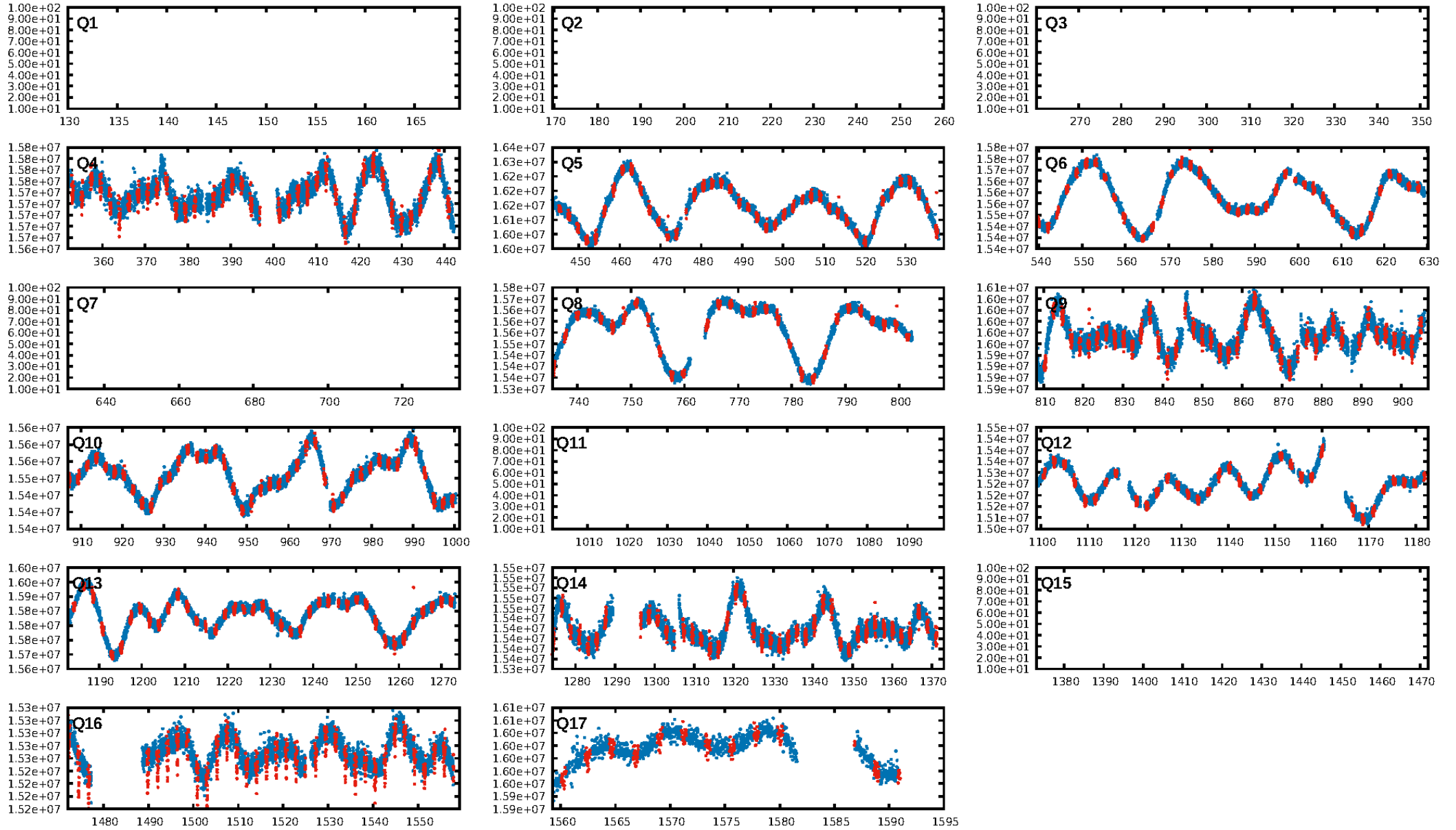
DV Fit Results:

Period = 2.19905 [0.00001] d
Epoch = 133.0707 [0.0033] BKJD
Rp/R* = 0.0351 [0.0137]
a/R* = 1.39 [0.09]
b = 0.99 [0.03]
Seff = 457.52 [112.00]
Teq = 1179 [72] K
Rp = 3.03 [1.30] Re
a = 0.0312 [0.0045] AU
Ag = 2.42 [2.13] [0.67σ]
Teff = 2274 [494] K [2.19σ]

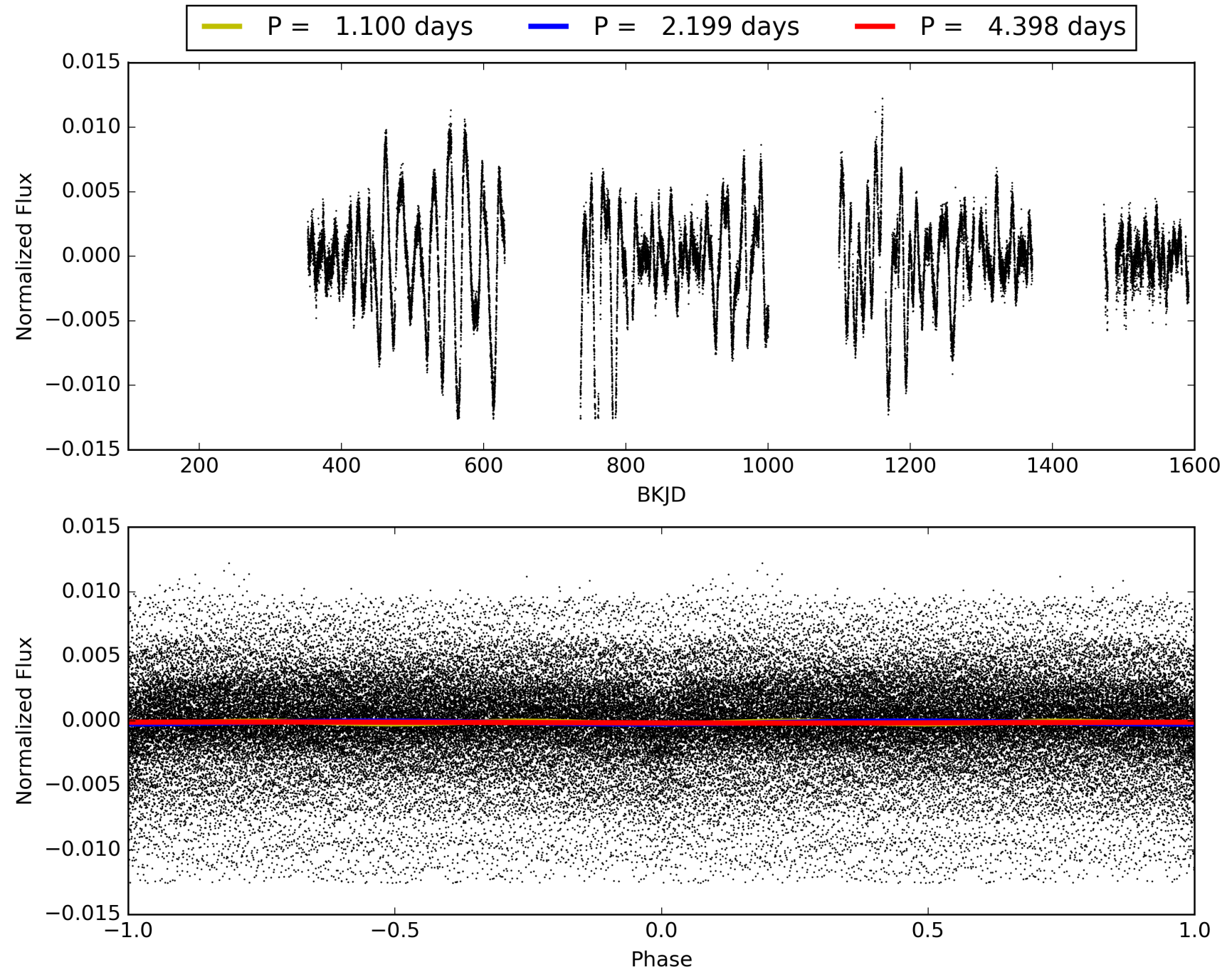
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGoF-sig: N/A
Bootstrap-pfa: 8.01e-169
RollingBand-fgt: 1.00 [387/387]
GhostDiagnostic-chr: -0.2152
Centroid-sig: 0.0%
Centroid-so: 78.257 arcsec [167.67σ]
OotOffset-rm: N/A
KicOffset-rm: N/A
OotOffset-st: 0/0/0/0 [0]
KicOffset-st: 0/0/0/0 [0]
DiffImageQuality-fgm: N/A
DiffImageOverlap-fno: 1.00 [11/11]

TCE 010491062-01, PDC Light Curves

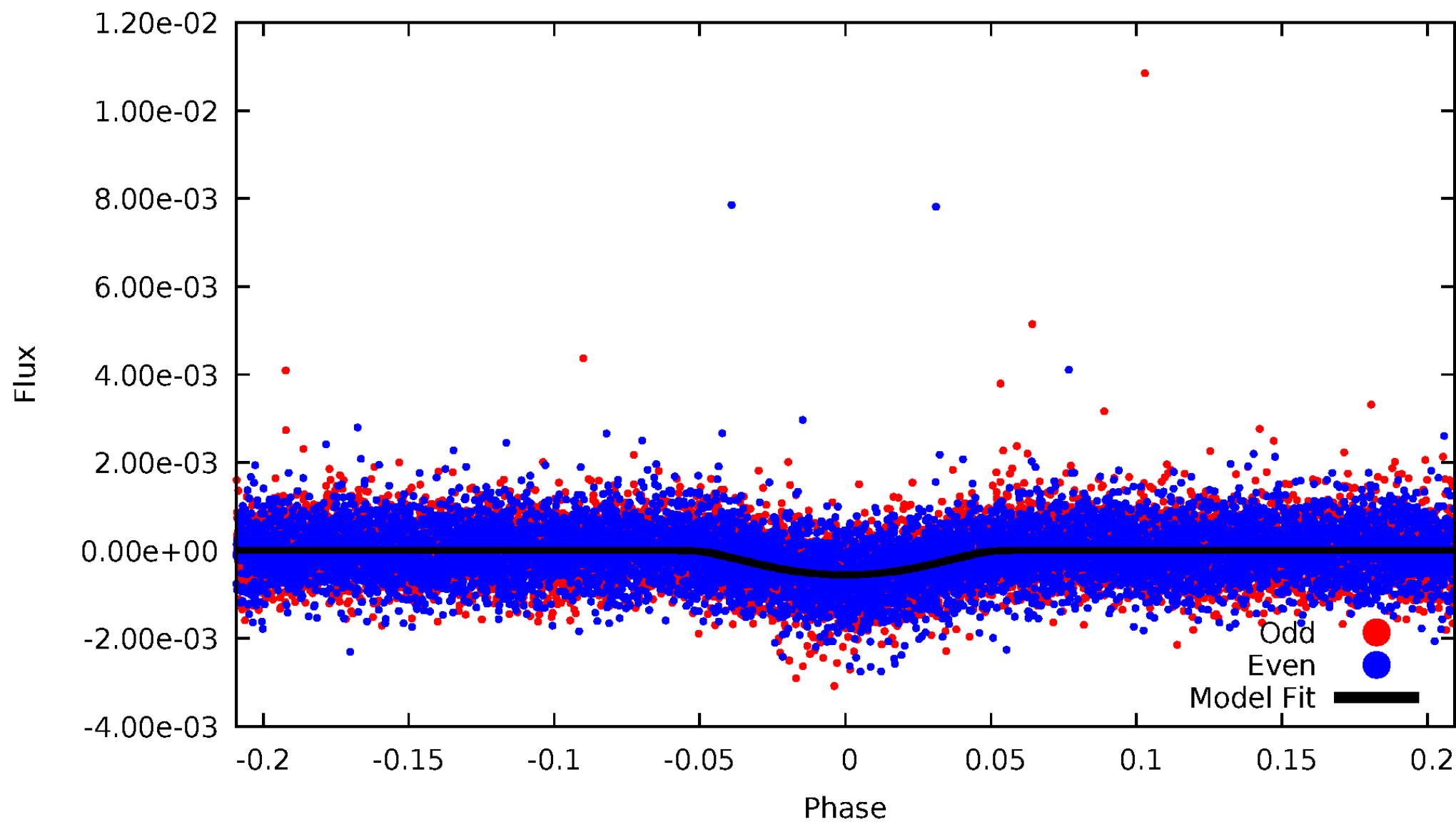


TCE 010491062-01



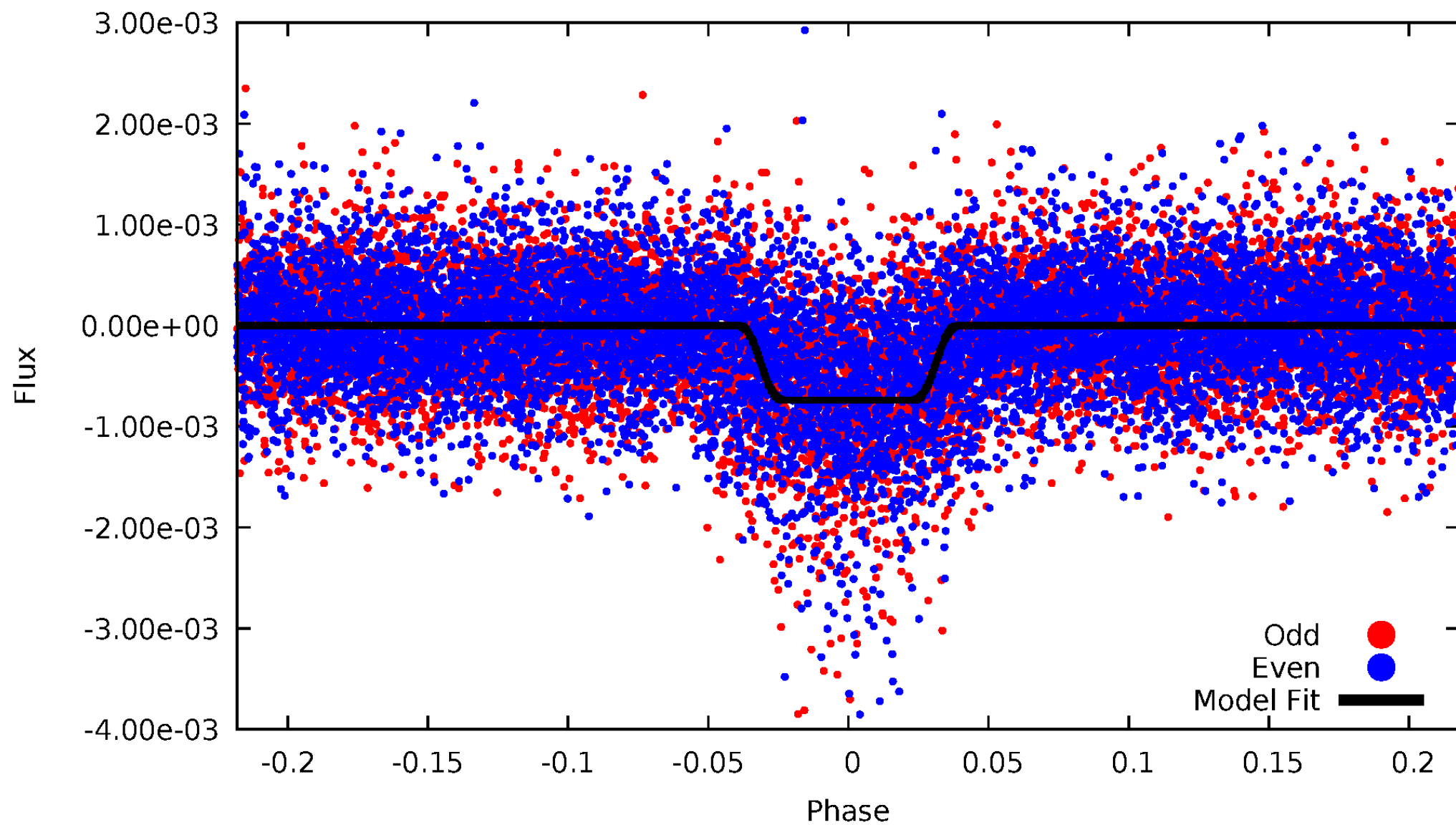
DV Odd/Even

TCE 010491062-01

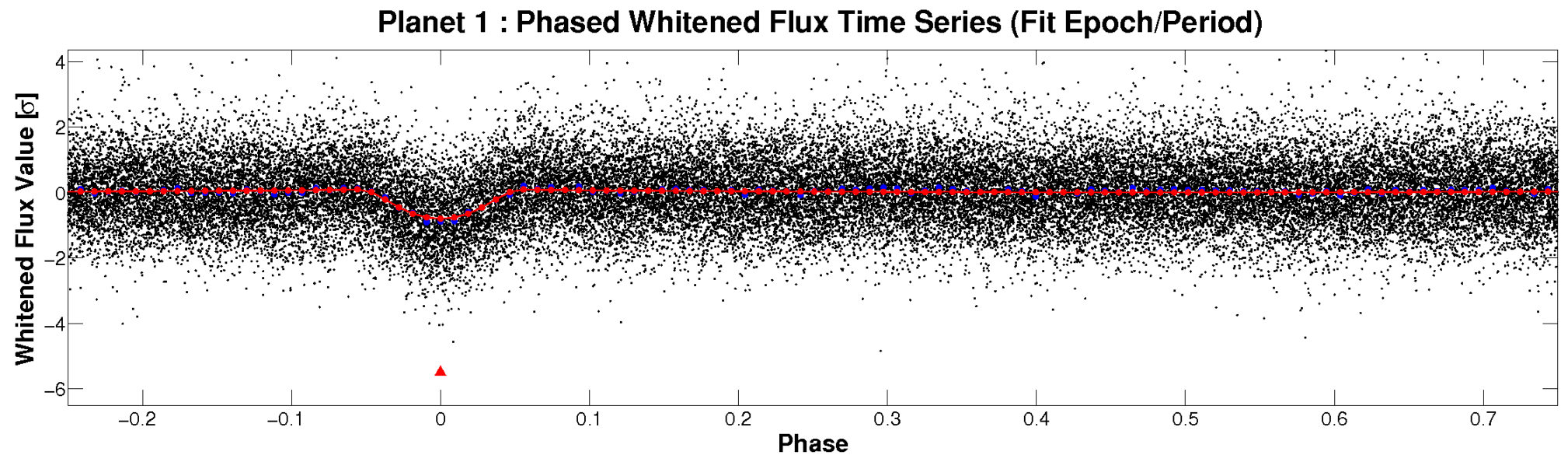
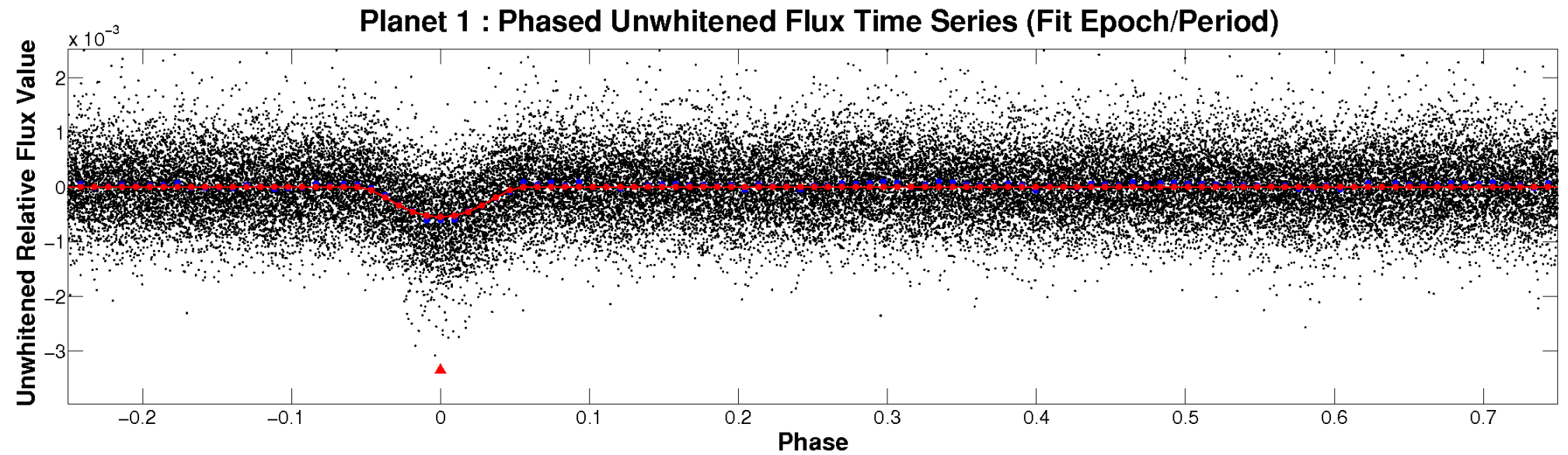


ALT Odd/Even

TCE 010491062-01

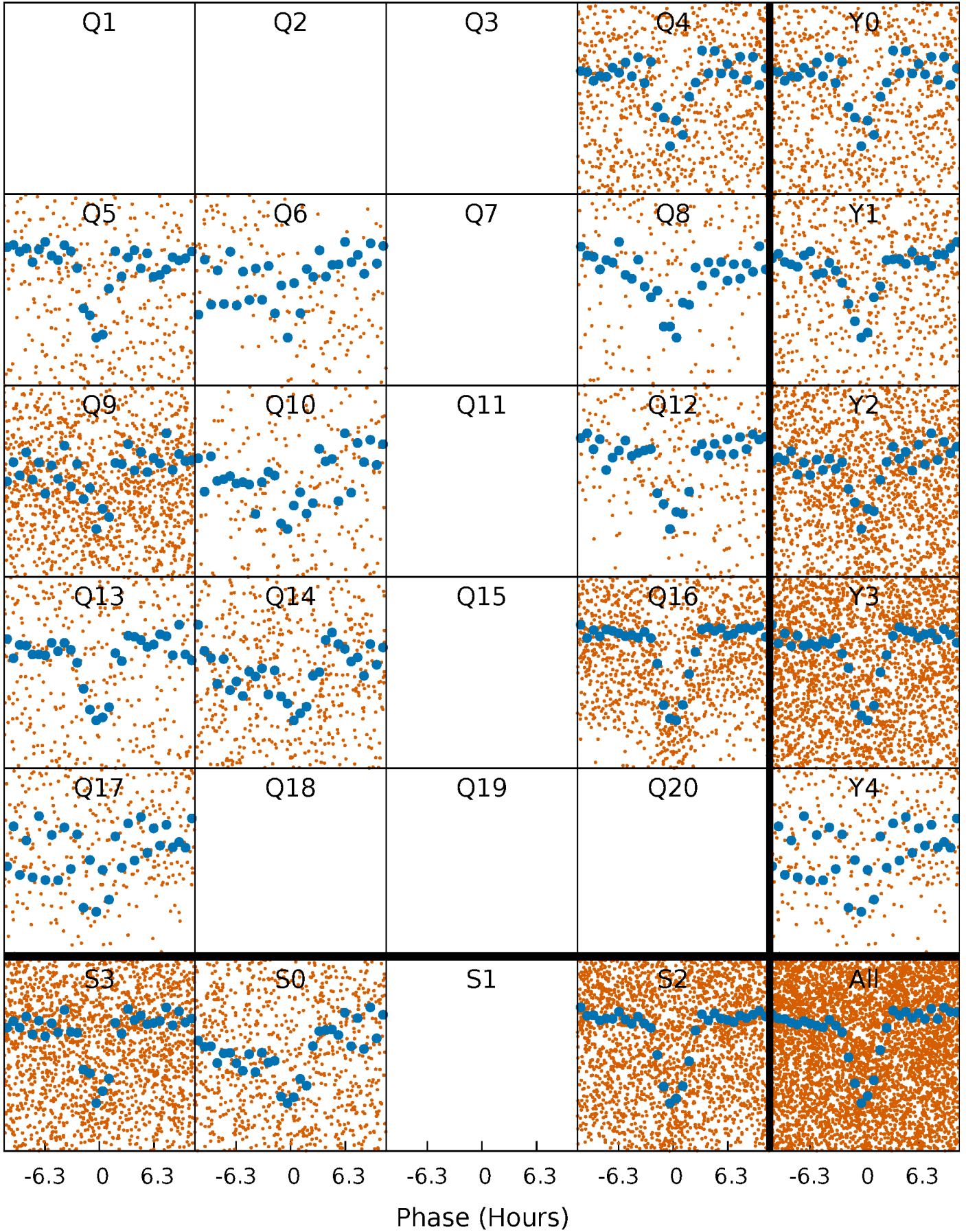


Non-Whitened Vs. Whitened Light Curve



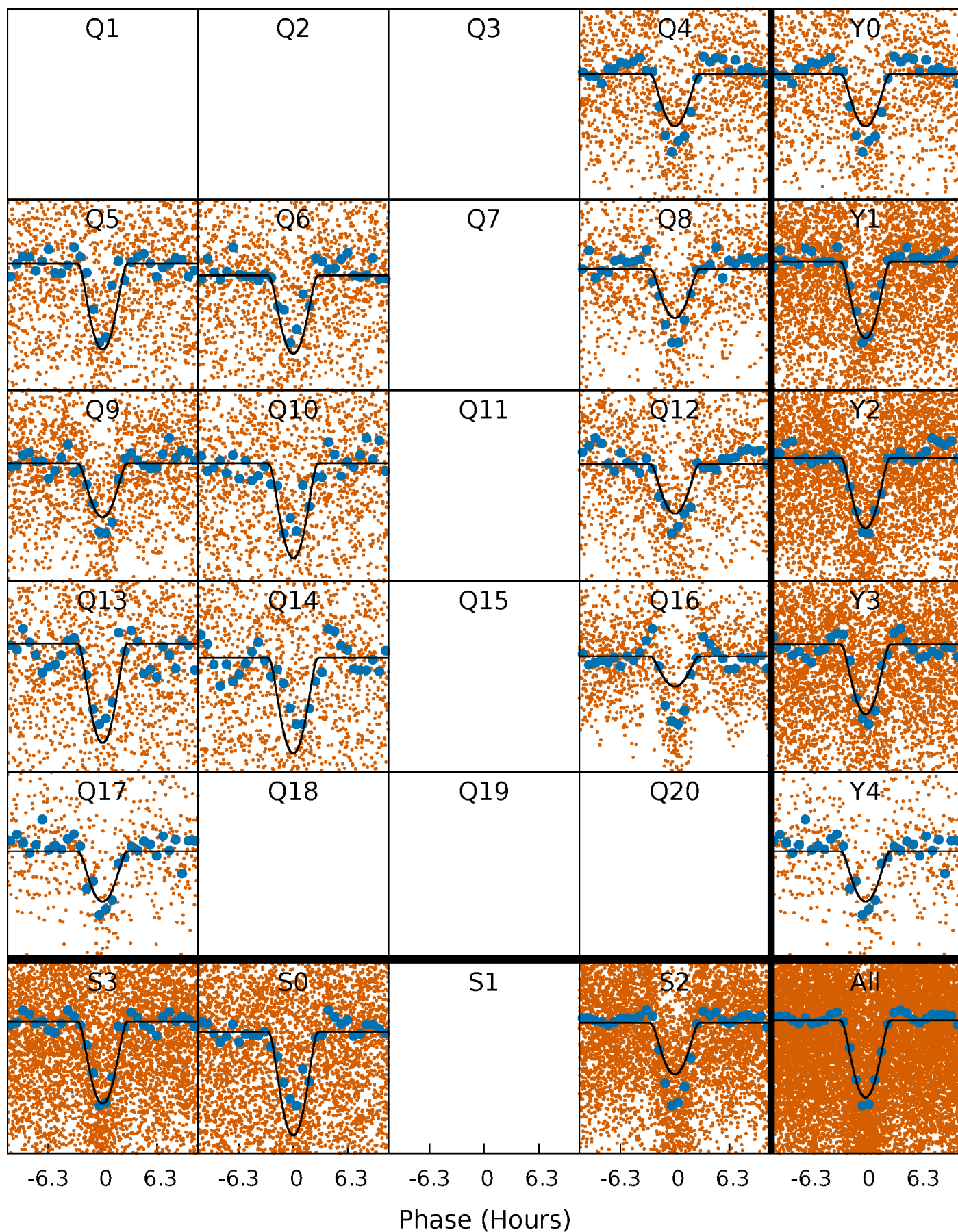
PDC Quarter-Phased Transit Curves

TCE 010491062-01 P= 2.199052 Days $T_0=133.070653$ (BKJD)



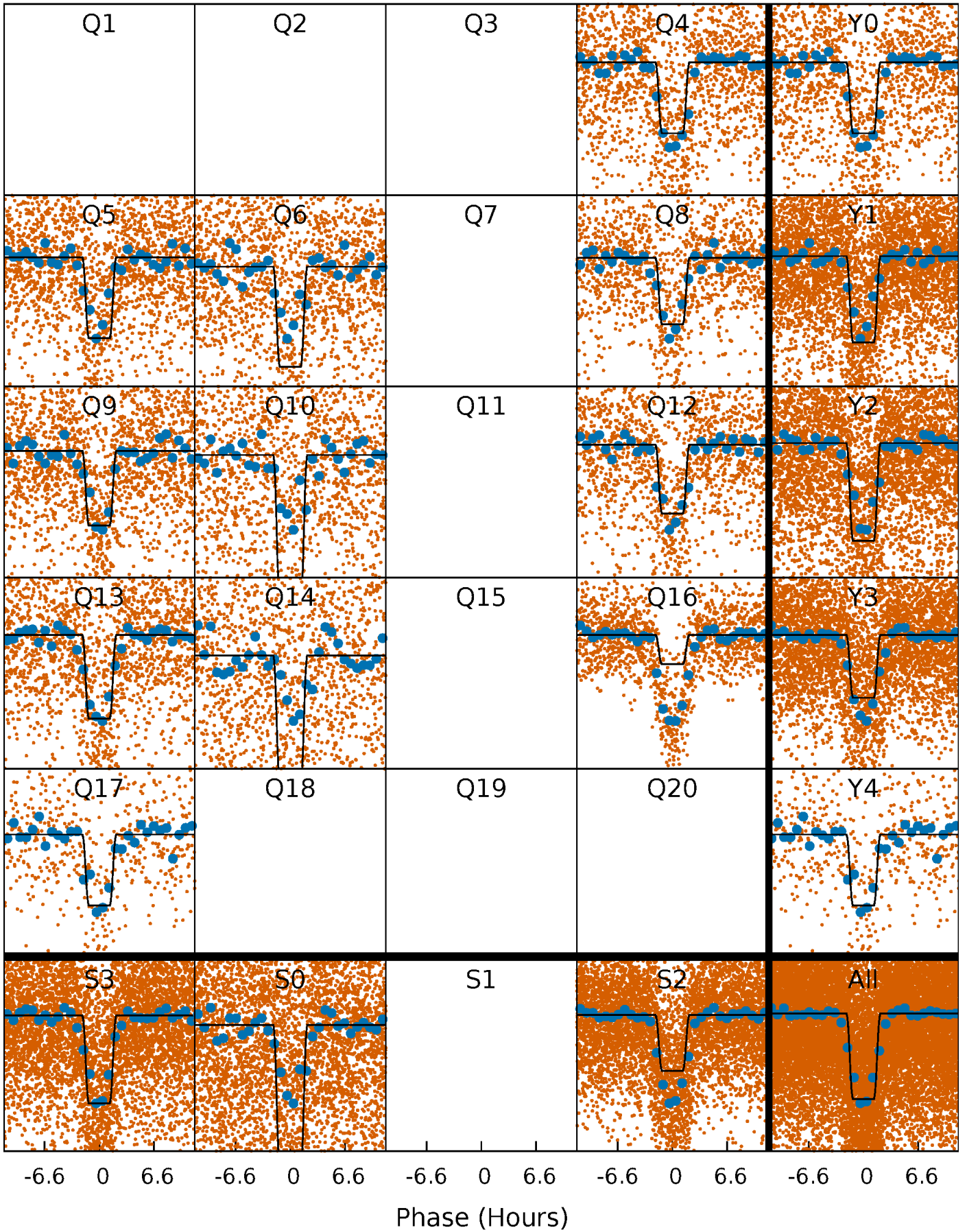
DV Quarter-Phased Transit Curves

TCE 010491062-01 P= 2.199052 Days $T_0=133.070653$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

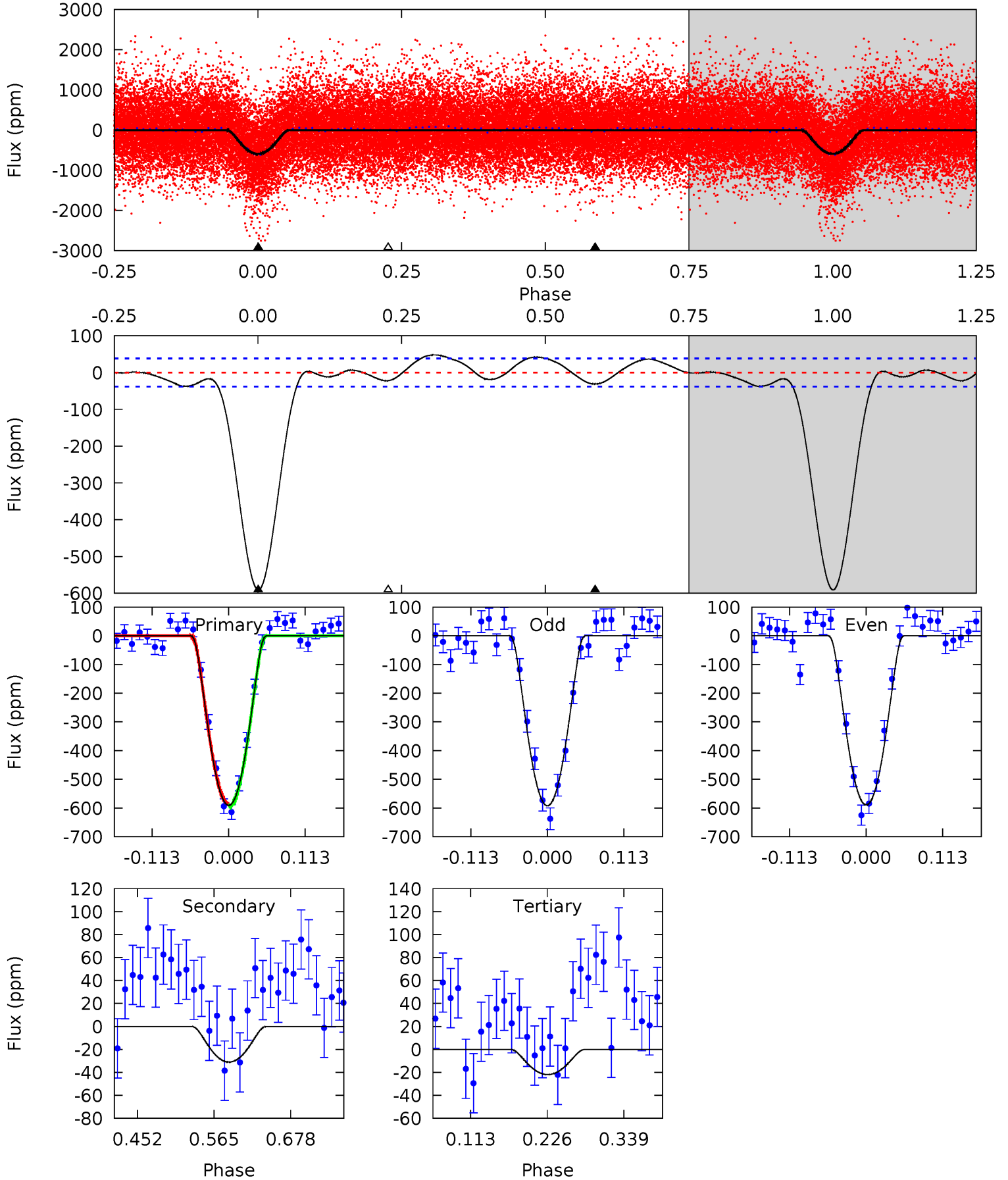
TCE 010491062-01 P= 2.199062 Days $T_0=133.066922$ (BKJD)



DV Model-Shift Uniqueness Test

010491062-01, P = 2.199052 Days, E = 133.070653 Days

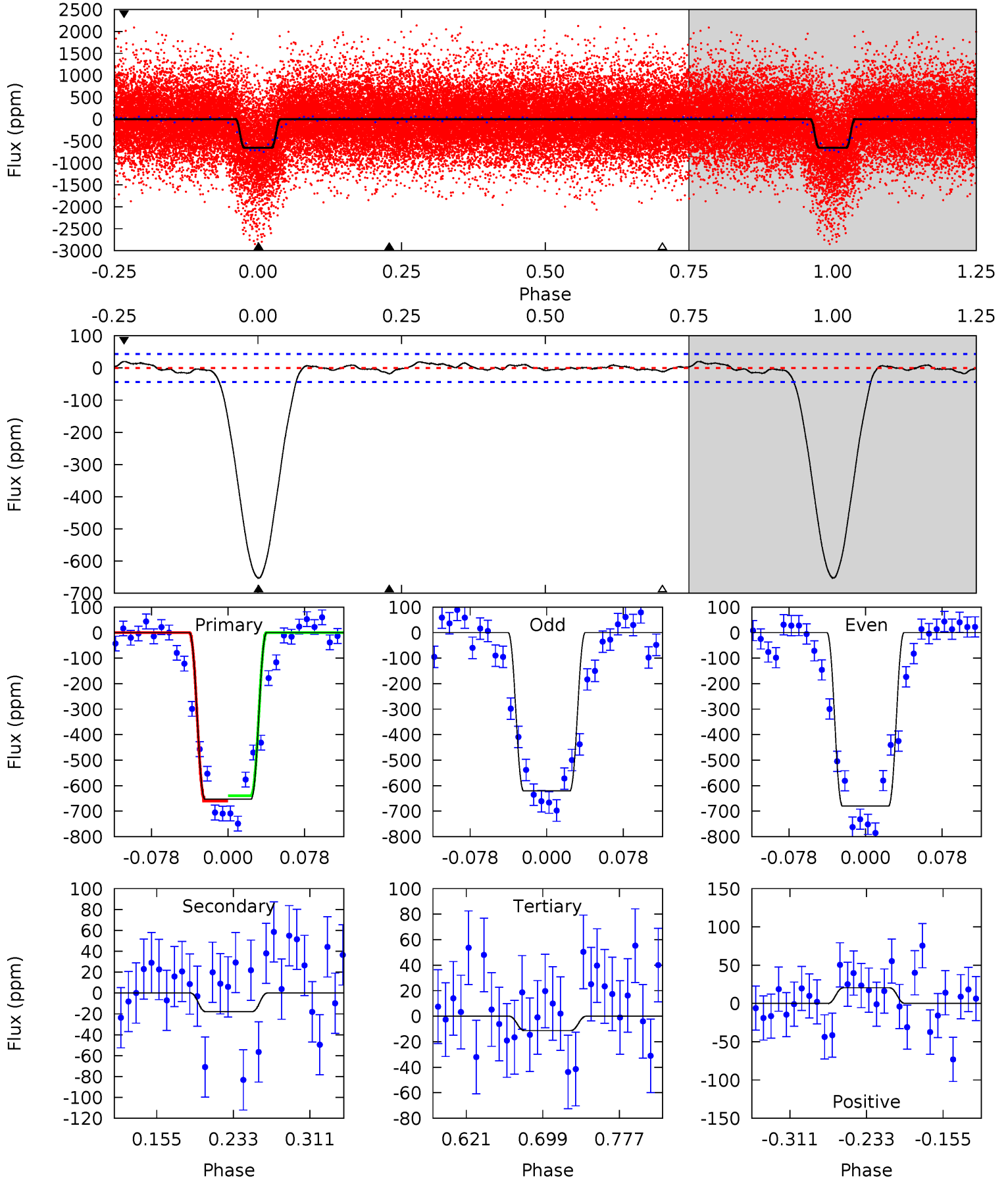
| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|------|------|------|-----|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 70.3 | 3.69 | 2.61 | 0 | 4.54 | 1.59 | 2.62 | 67.6 | 70.3 | 1.08 | 3.69 | 0.16 | 1.06 | 0.08 | 0.63 |



Alt Model-Shift Uniqueness Test

010491062-01, P = 2.199062 Days, E = 133.066922 Days

| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 69.7 | 1.91 | 1.20 | 2.18 | 4.62 | 1.76 | 0.80 | 68.5 | 67.5 | 0.71 | -0.27 | 3.14 | 1.14 | 0.03 | 1.10 |



Stellar Parameters For KIC 010491062

| | $T_{\text{eff}}(K)$ | $\log(g)$ | [Fe/H] | R (R_{\odot}) | M (M_{\odot}) | p_{\star} ($\text{g}\cdot\text{cm}^{-3}$) |
|--------|----------------------|---------------------------|----------------------------|---------------------------|---------------------------|---|
| | 5310^{+185}_{-185} | $4.565^{+0.045}_{-0.105}$ | $-0.100^{+0.300}_{-0.300}$ | $0.791^{+0.143}_{-0.066}$ | $0.838^{+0.087}_{-0.087}$ | $2.383^{+0.553}_{-0.765}$ |
| | +3%/-3% | +1%/-2% | +300%/-300% | +18%/-8% | +10%/-10% | +23%/-32% |
| Source | KIC0 | KIC0 | KIC0 | DSEP | | |

KIC = Kepler Input Catalog; PHO = Photometry; SPE = Spectroscopy; AST = Asteroseismology
 TRA = Transits; DESP = Dartmouth Models; MULT = Multiple Models

Secondary Eclipse Parameters for KIC 010491062-01 / KOI 3910.01

| Detrend | Depth (ppm) | R_p (R_{\oplus}) | T_{max} (K) | T_{obs} (K) | A_{obs} |
|---------|-------------|------------------------|----------------------|----------------------|---------------------------|
| DV | -31 ± 8 | $3.09^{+1.25}_{-1.19}$ | 1668^{+79}_{-77} | 2749^{+481}_{-339} | $1.698^{+2.890}_{-0.893}$ |
| Alt. | -18 ± 9 | $2.46^{+1.15}_{-1.13}$ | 1666^{+77}_{-67} | 2709^{+595}_{-508} | $1.507^{+3.686}_{-1.001}$ |

T_{max} = Theoretical Maximum Planetary Temperature

T_{obs} = Observed Planetary Temperature (Assuming $A=0.3$)

A_{obs} = Observed Albedo (Assuming $T=0$)

If a secondary eclipse is present, the system is likely an EB if $T_{\text{obs}} \gg T_{\text{max}}$ AND $A_{\text{obs}} \gg 1.0$

DV Centroid Data

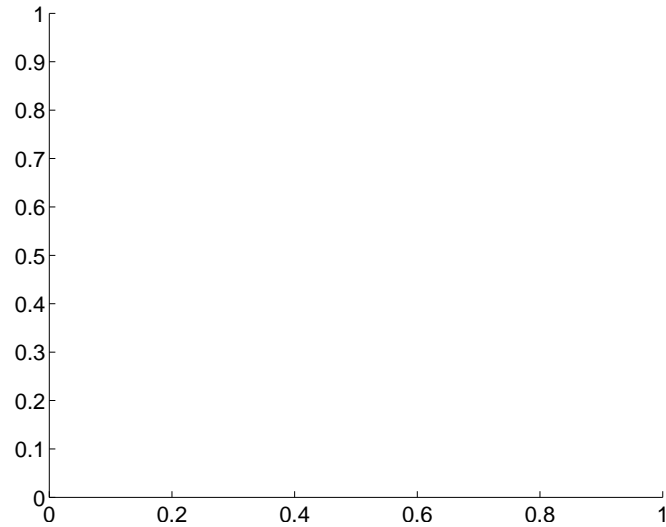
Supplemental centroid analysis for 010491062-01. Kepler magnitude: 15.34. Transit SNR 34.62

There are 0 quarters with good PRF difference image offsets

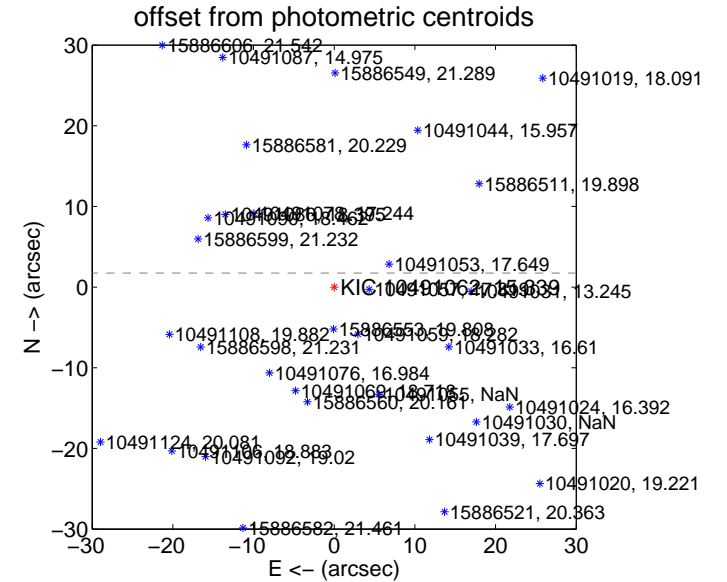
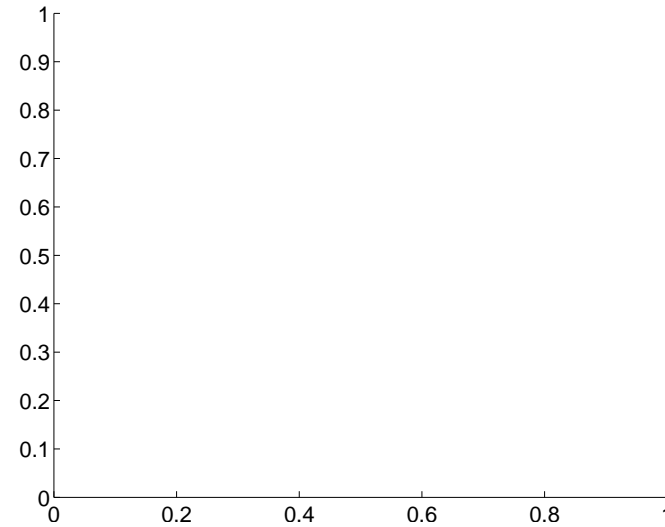
The direct PRF centroid is offset from the target star catalog position by about NaN arcsec

| | Distance in arcsec | Distance / σ | Δ RA | Δ Dec |
|---|--------------------|---------------------|-------------------|-----------------|
| PRF-fit source offset from OOT | — | — | — | — |
| PRF-fit source offset from KIC position | — | — | — | — |
| photometric centroid source offset | 78.26 ± 0.47 | 167.67 | -78.24 ± 0.47 | 1.74 ± 0.34 |

There is no PRF-fit offset from OOT-fit

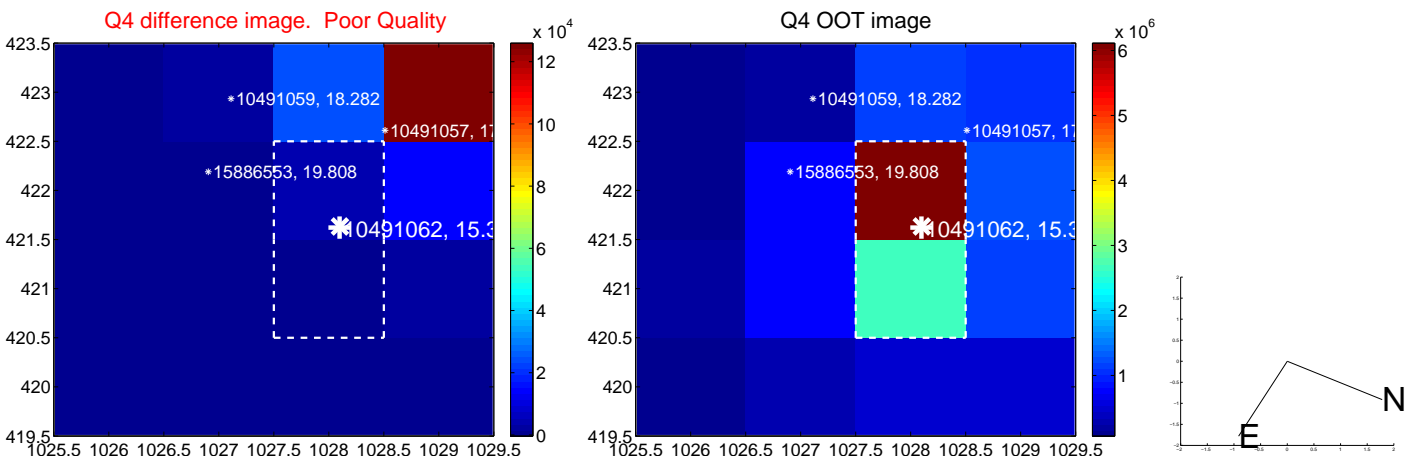
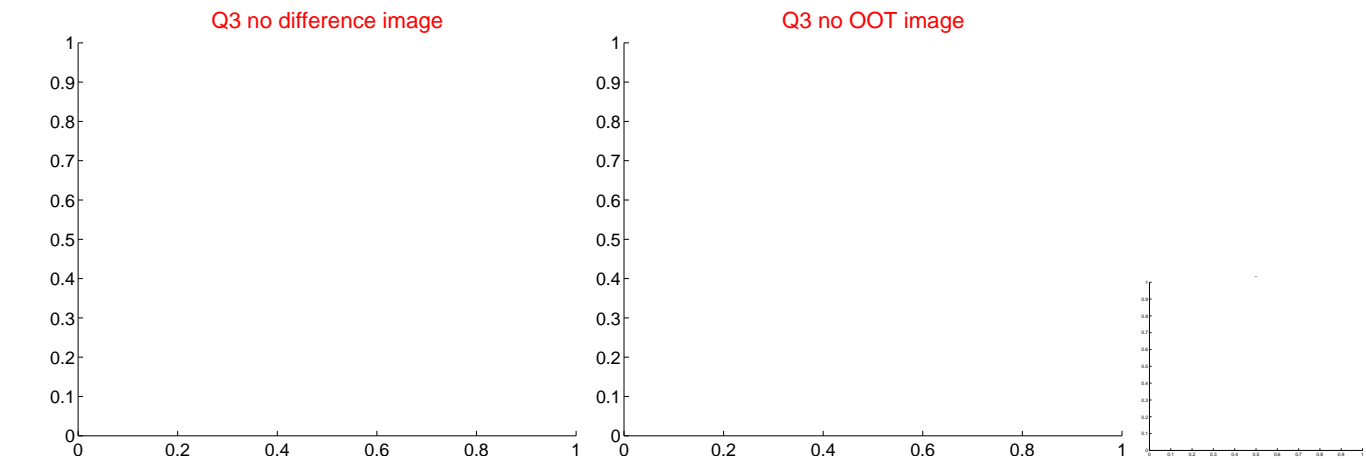
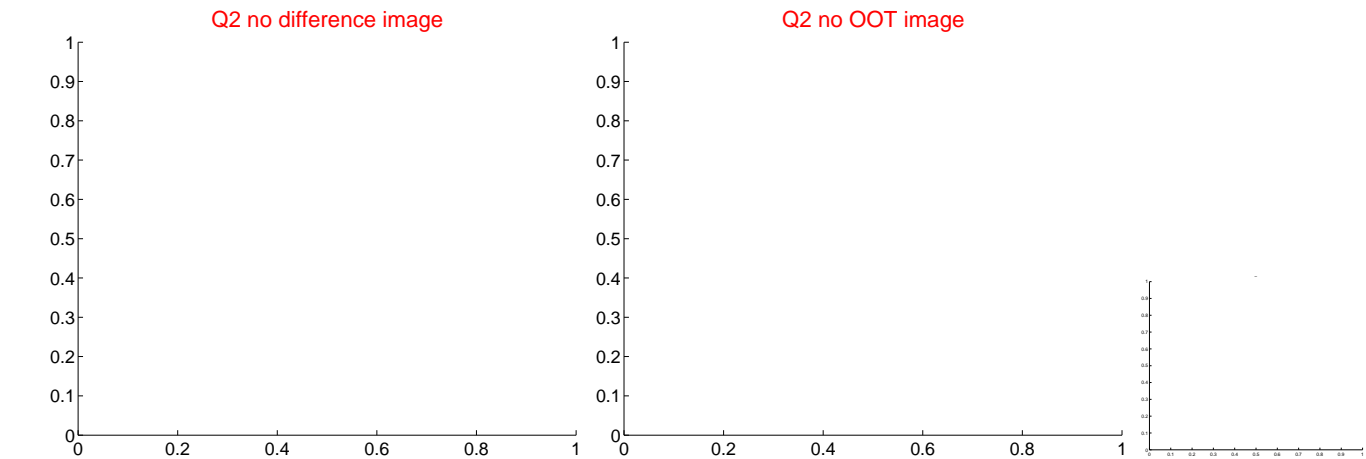
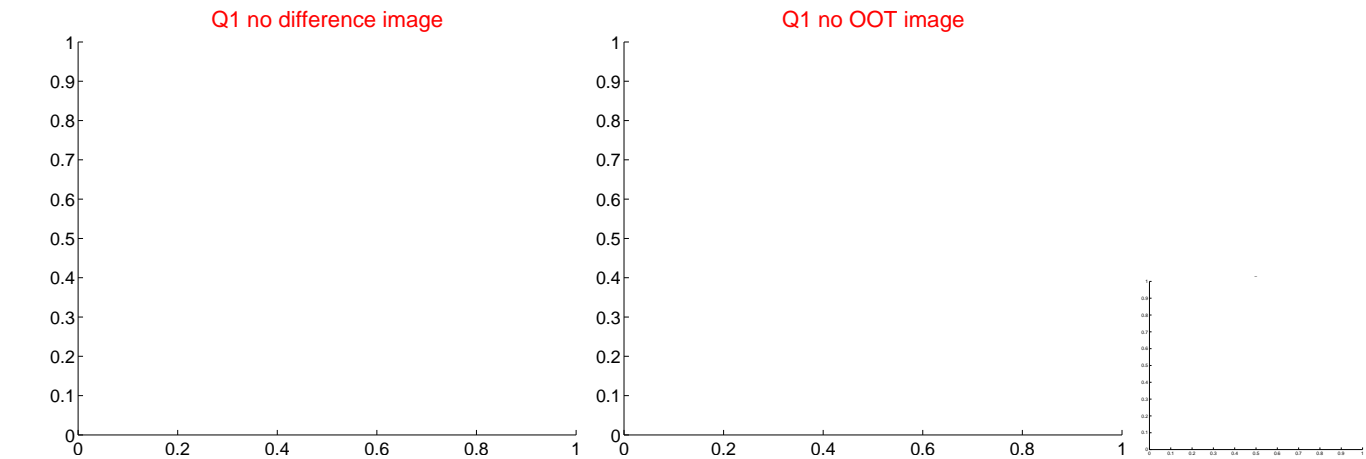


There is no PRF-fit offset from KIC

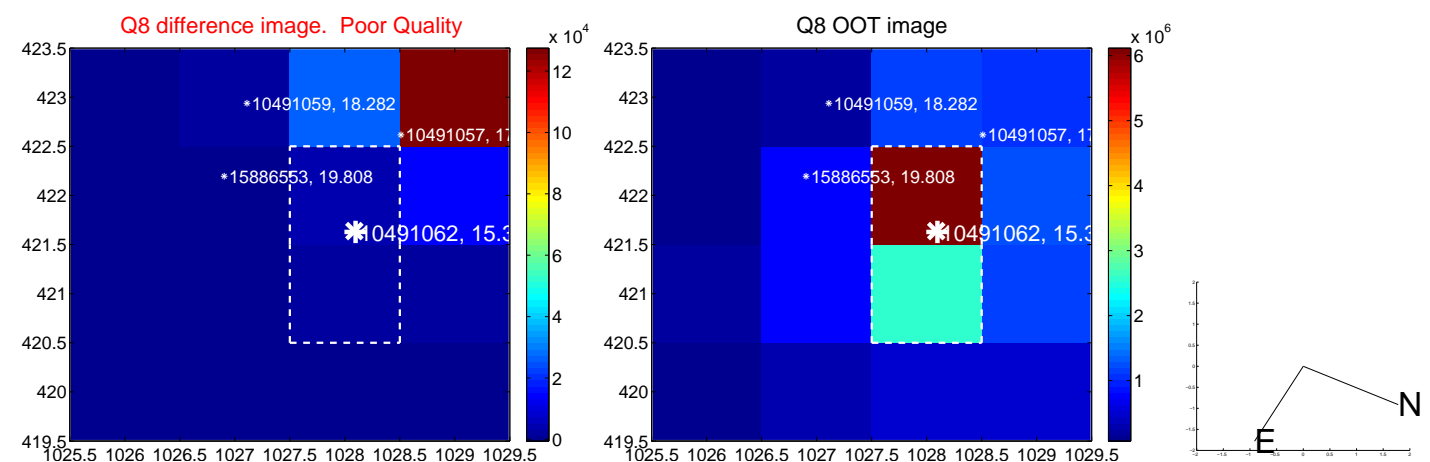
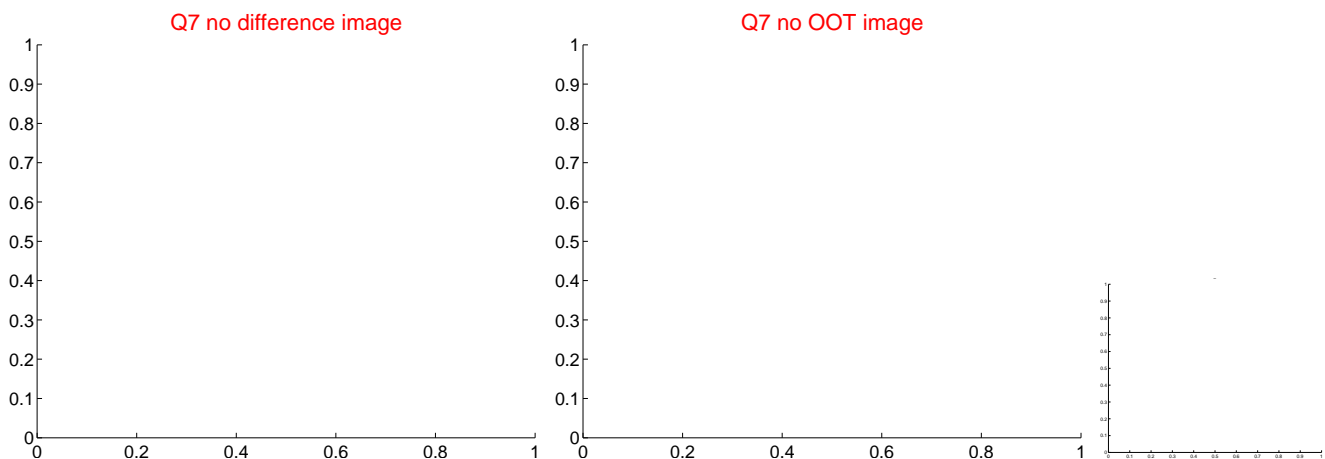
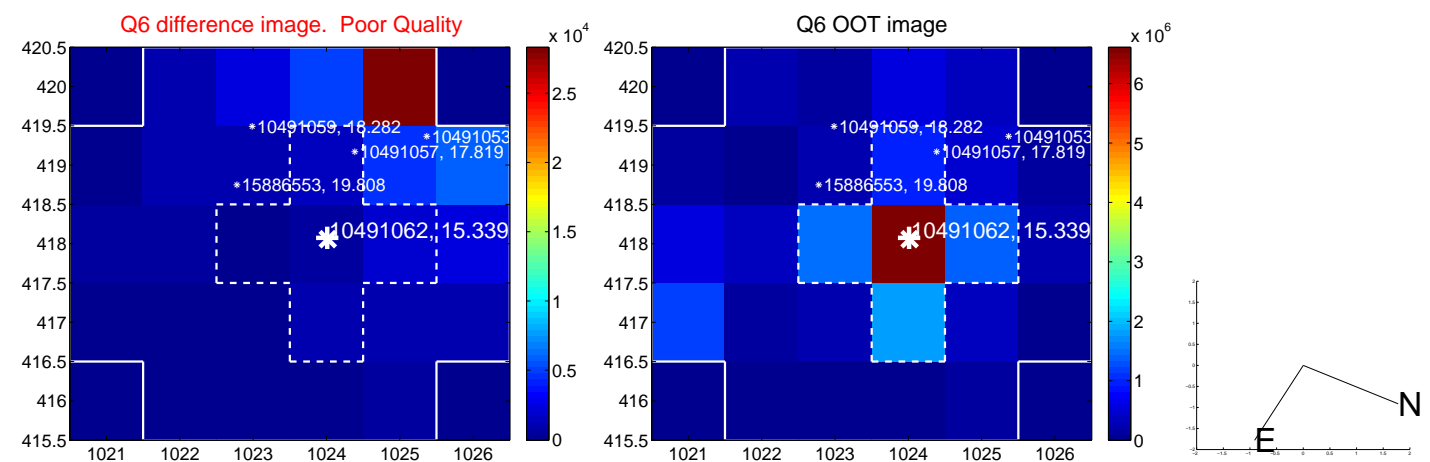
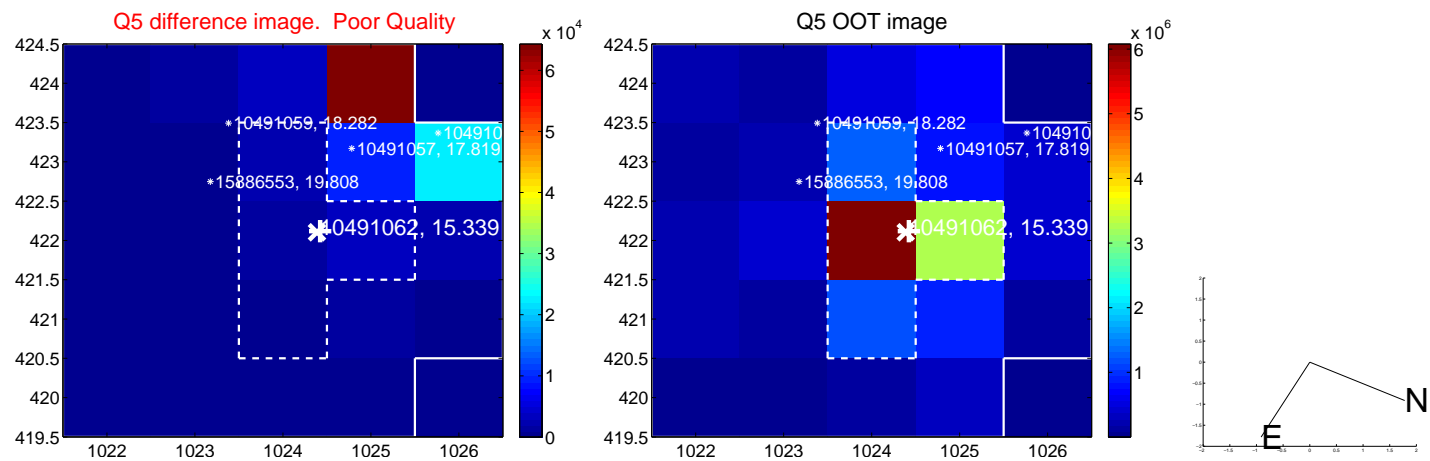


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ . Red *: target star. Blue *: Other stars. Text next to a star gives its KIC ID and kepmag. KIC IDs > 15,000,000 are from the UKIRT catalog.

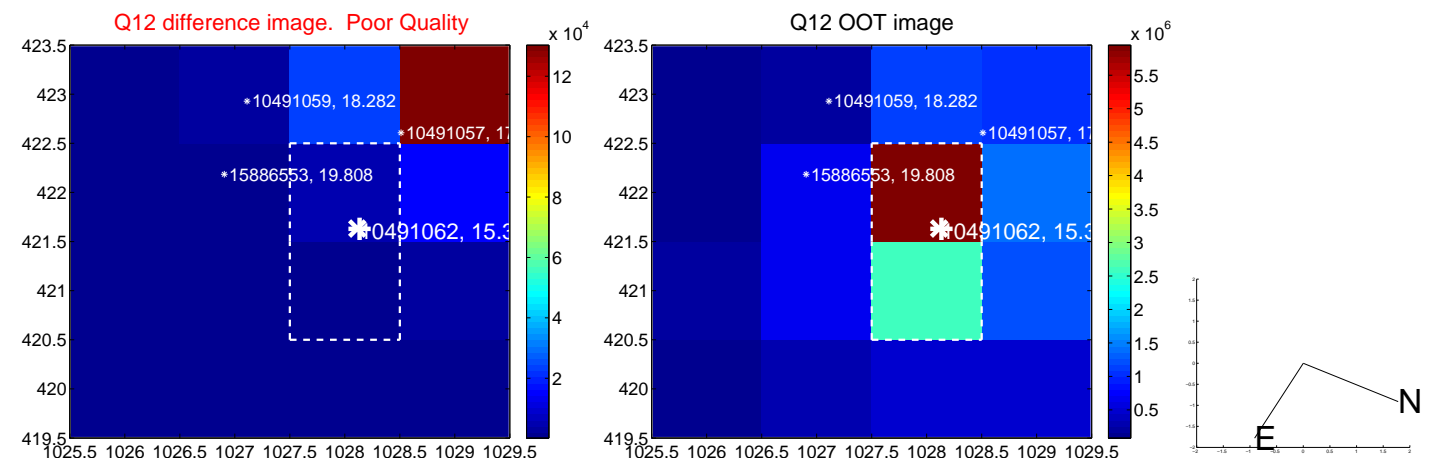
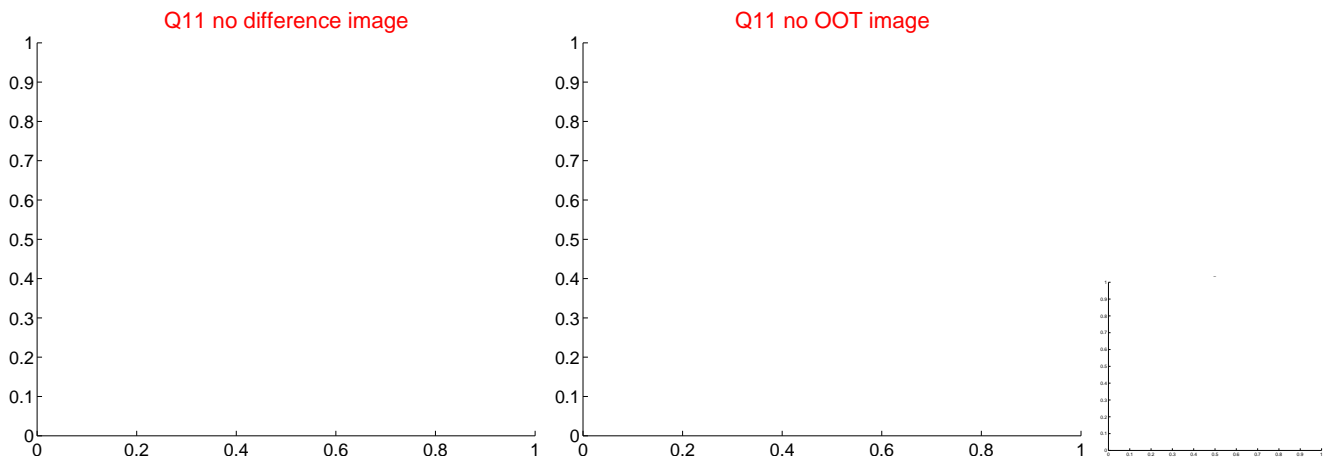
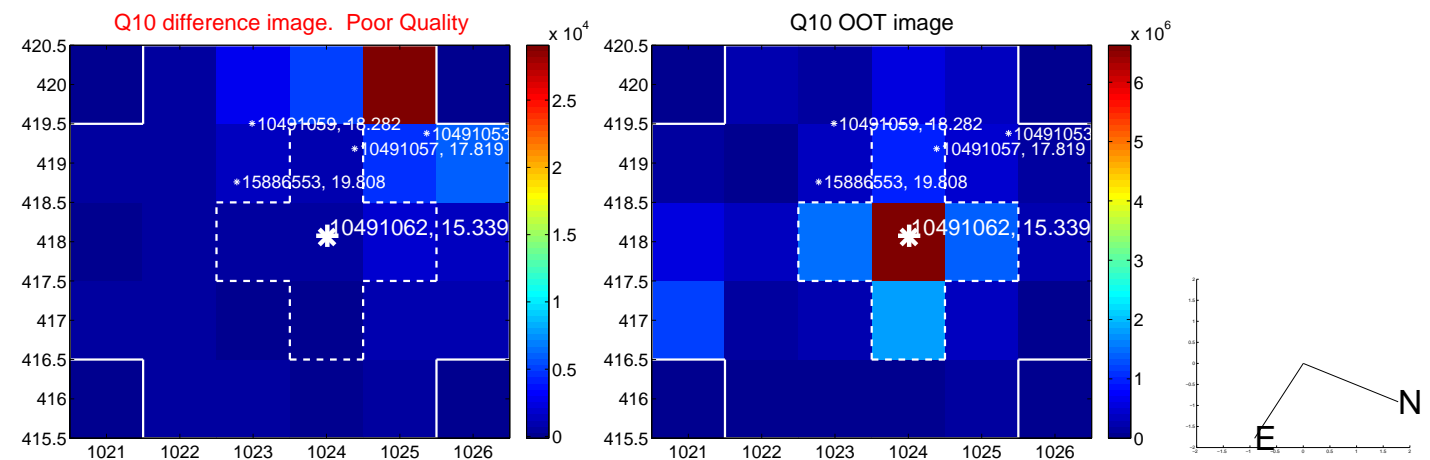
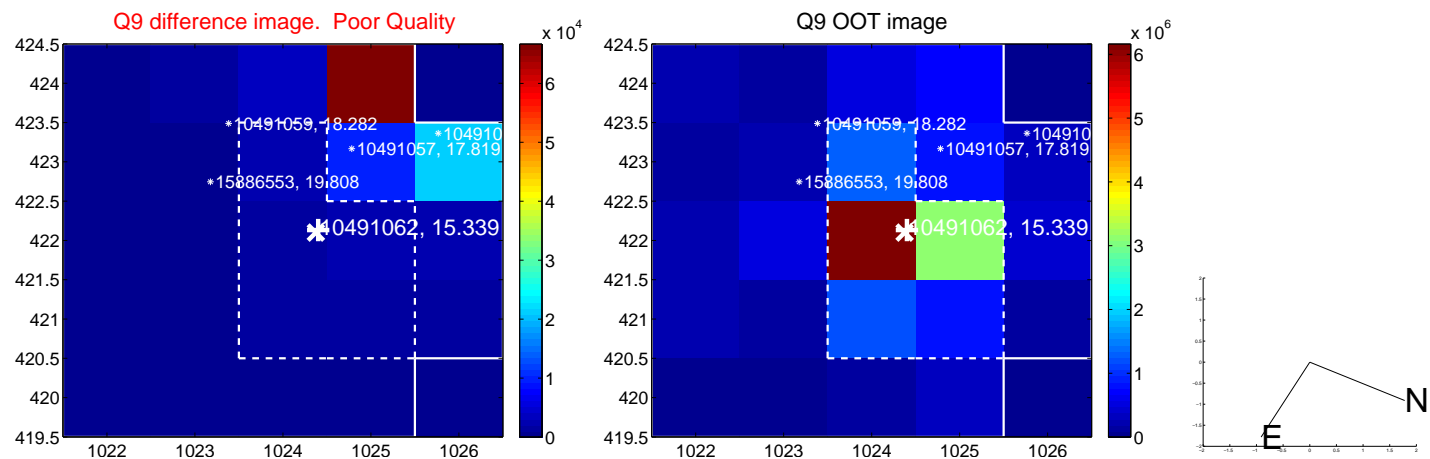
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.



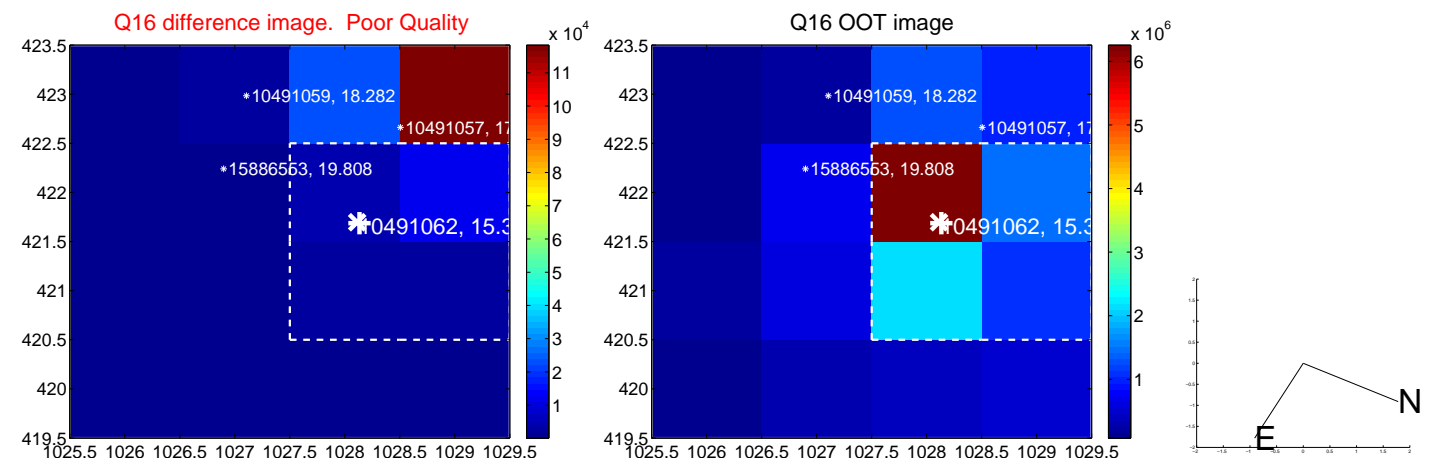
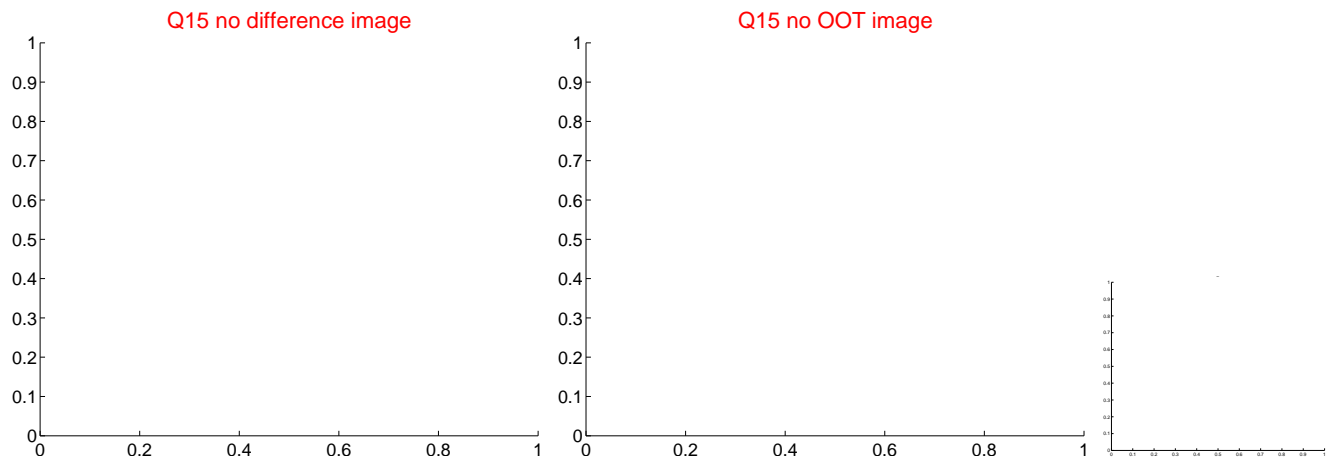
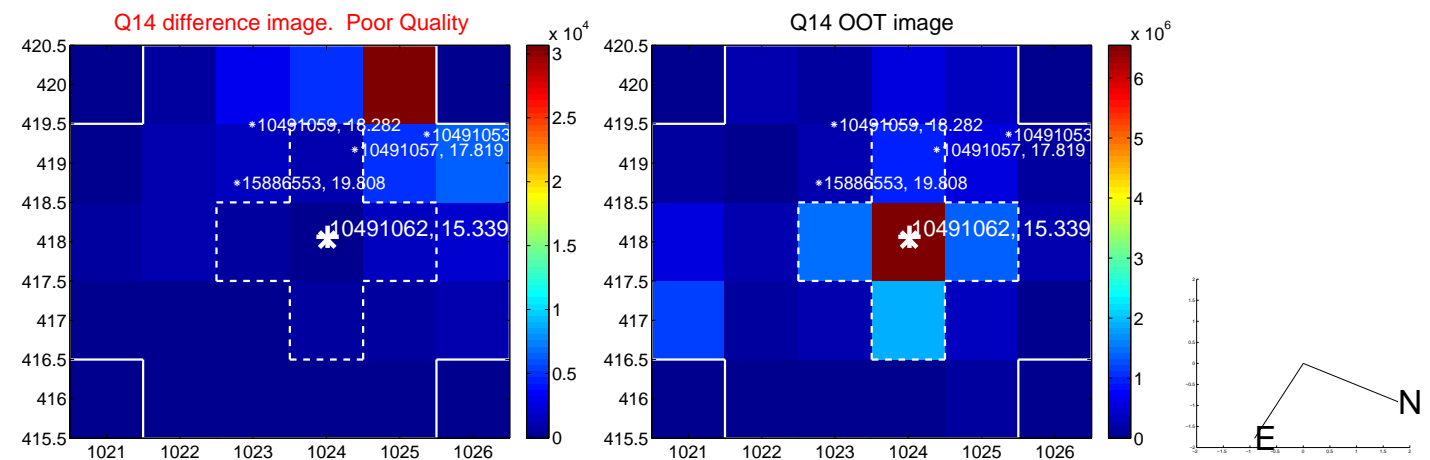
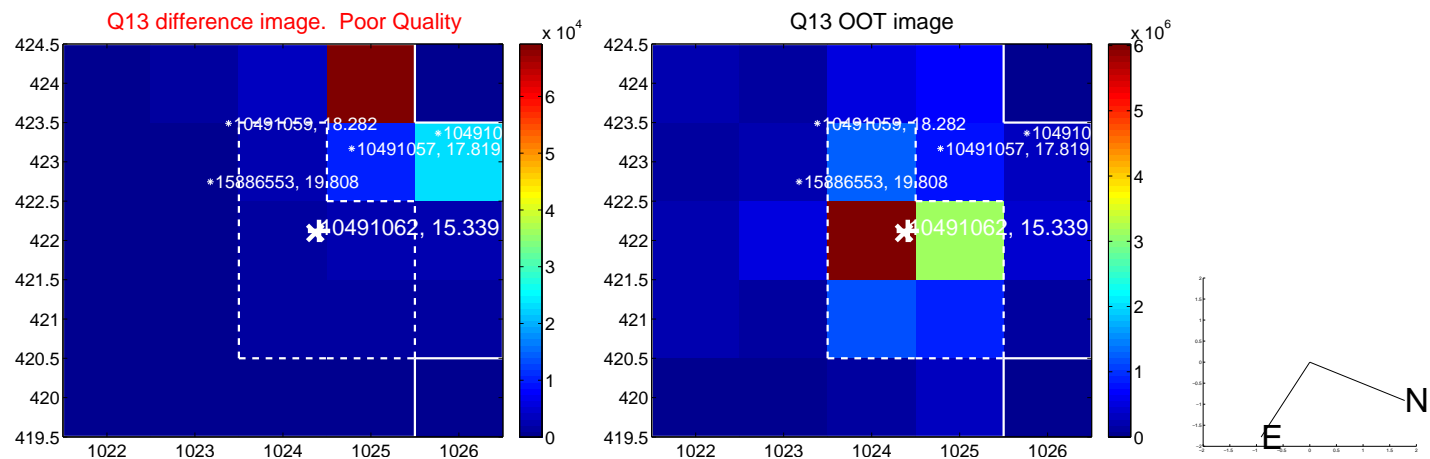
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



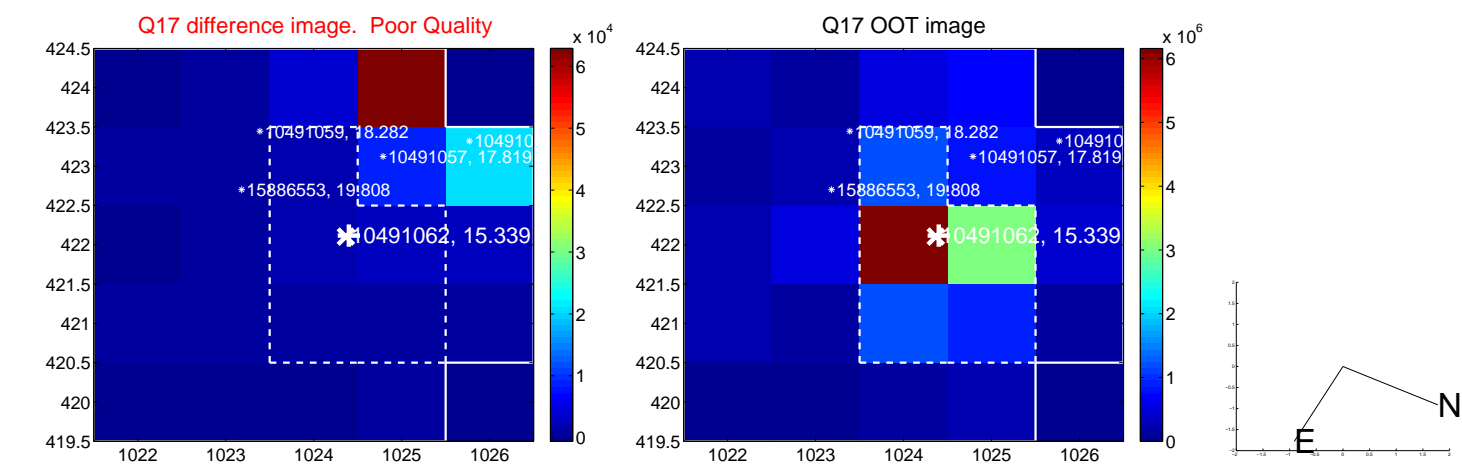
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



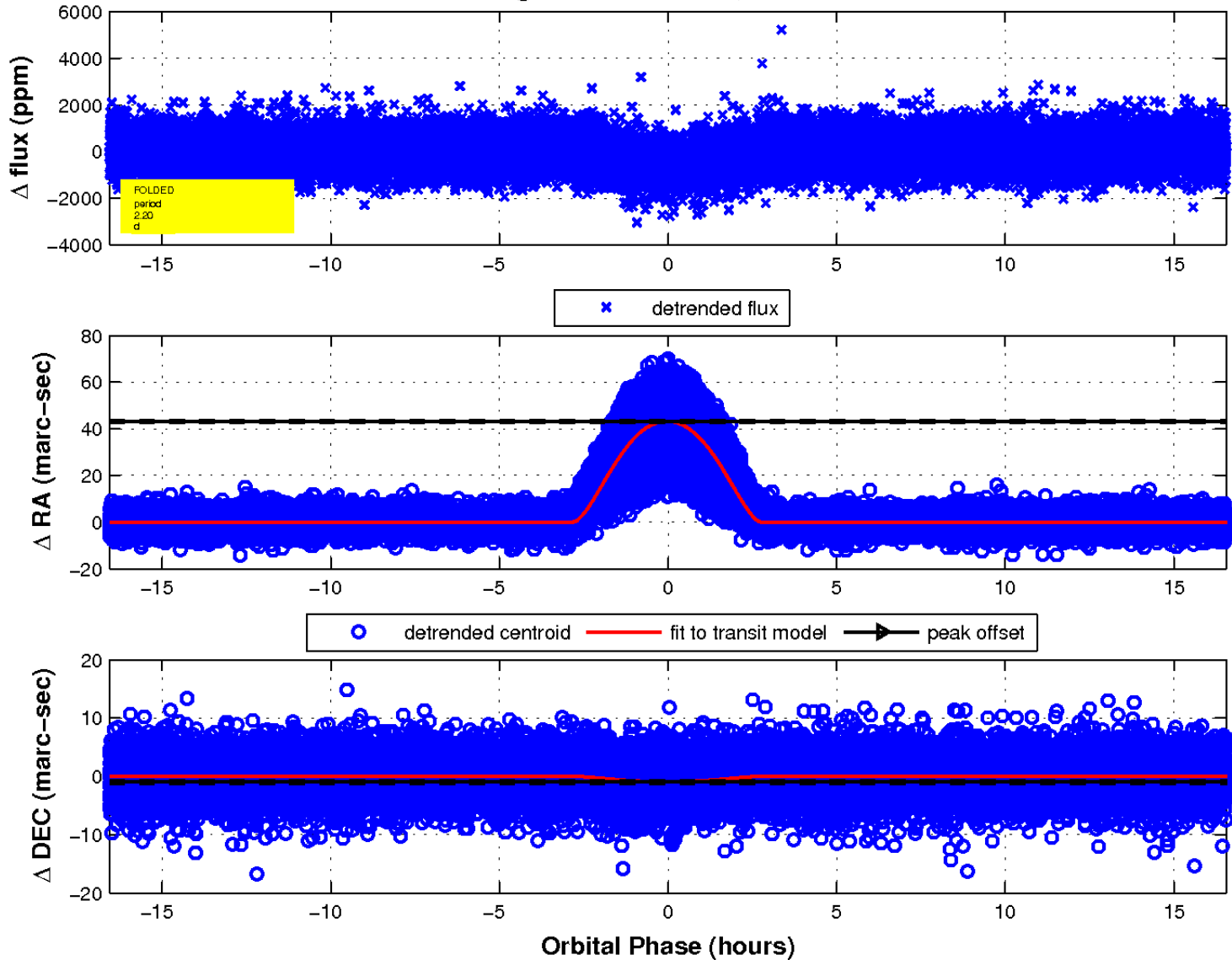
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.



fluxWeightedCentroids, Planet 1 of 1



UKIRT Image

Declination

